

THE CHINESE BLINDUS MULSANT ET REY (COLEOPTERA, TENEBRIONIDAE), WITH DESCRIPTION OF A NEW SPECIES

REN Guo-Dong, ZHANG Cheng-Li

College of Life Sciences, Hebei University, Baoding 071002, China; E-mail: gdren@hbu.edu.cn

Abstract This paper offers a brief taxonomic summary of the genus *Blindus* Mulsant et Rey, 1853 from China and describes one new species, *B. curvotibius* sp. nov., from Henan, China. A worldwide key to the known species of the genus is given below. The type specimens were deposited in the Hebei University Museum, Baoding, China (HBUM).

Key words Coleoptera, Tenebrionidae, *Blindus*, taxonomy, new species, China

The *Blindus* Mulsant et Rey, 1853 belongs to the tribe Pedinini (Coleoptera, Tenebrionidae). Before this study, only seven species had been described worldwide (Medvedev, 1968; Faldemann, 1835; Reitter, 1889; Seidlitz, 1893; Faimaire, 1897).

They are mainly distributed in China (Sichuan, Chongqing, Hebei, East Inner Mongolia, Hubei, Anhui), Russia (Far East) and the Korean Peninsula, with the exception of *B. fulvicornis* (Reitter, 1889), which occurs only in Japan (Fig. 1).

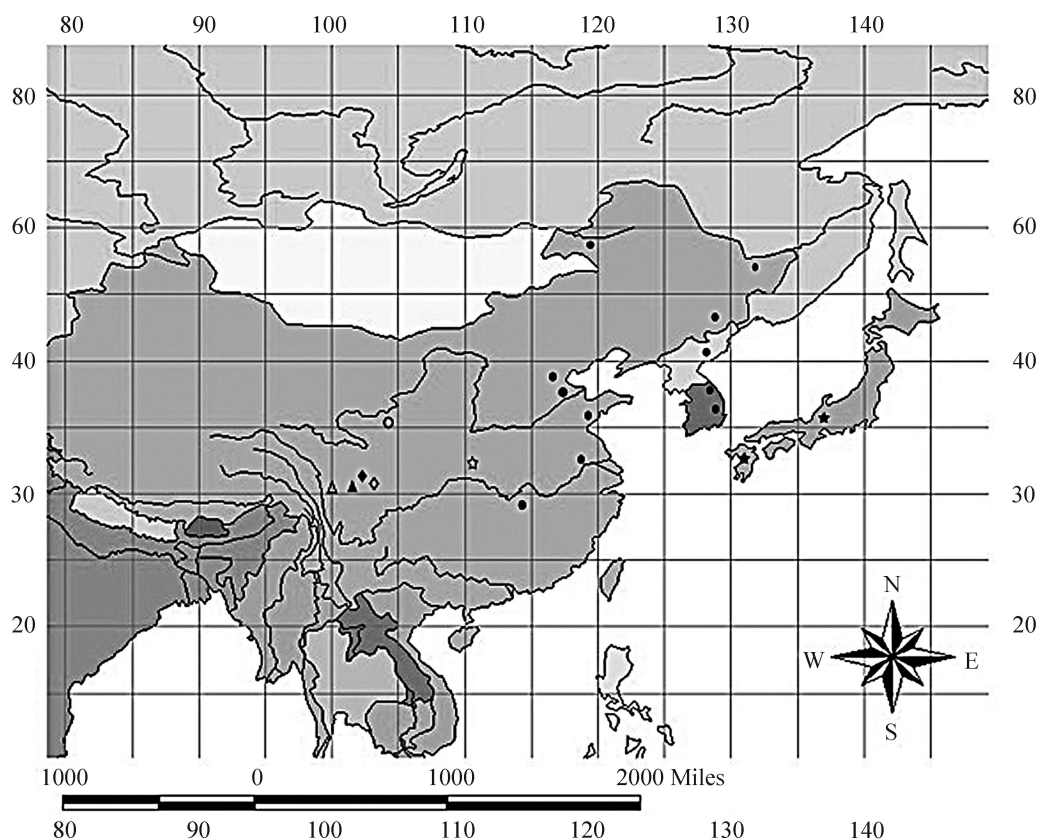


Fig. 1. Worldwide geographical distribution of the genus *Blindus*

B. curvotibius sp. nov. *B. fulvicornis* *B. japonicus* *B. potanini* *B. potanini nudiventris*
B. reikhardti *B. strigosus* *B. tibetanus*

The species of this genus live in loose soil and occupy habitats with moderate rainfall and rich vegetation. They usually hide under stones and fallen

leaves during the day and are active in the evening. Larvae live in relatively dry sandy soil and feed on plant roots and animal corpses. They are forest-steppe

and semi-desert grassland beetles

In this paper, we provide a key to the species of the genus and describe one new species, *B. curvotibius* sp. nov., from Henan, China. The type specimens were deposited in the Museum of Hebei University.

Genus *Blindus* Mulsant et Rey, 1853

Pedinus Mulsant et Rey, 1853a: 122; 1853b: 206 (subg. *Blindus*).

Blindus: Medvedev, 1968: 155-167.

Type species: *Pedinus strigosus* Faldem ann, 1835

Diagnosis Body oblong-oval, black, weakly shining, without hairs. Eyes divided into two parts by genae. Each with eight punctato-striae. Protibiae sharply dilated from base to apex. Metatibiae slender and straight. Protarsomeres 1-3 obviously dilated in male, mesotarsomere narrow.

Key to the world's species of *Blindus* Mulsant et Rey ()

1. Metatibiae angularly curved near base; elytral punctato-striae fine; body length 9.5 mm *B. tibetanus*
Metatibiae not angularly curved 2
2. Metatibiae symmetrically curved and dilated from base to apex ... 3
Metatibiae curved, and becoming slender in middle; punctato-striae of elytra deep, intervals strongly convex; body length 8.7-9.6 mm *B. curvotibius* sp. nov.
3. Metatibiae straight or feebly curved 4
Metatibiae distinctly curved 5
4. Punctures of pronotum obviously elongated and confluent from disc to sides; body length 8.7-9.6 mm *B. strigosus*
Punctures of pronotum feebly elongate and unconfined in sides; body length 8.7-9.6 mm *B. japonicus*
5. Front angles of pronotum obtuse; punctato-striae of elytra distinct, the distance of intervals less than diameter of punctures, intervals with dense wrinkles; body length 9.2 mm *B. fulvicornis*
Front angles of pronotum sharp 6
6. Pronotum about 1.3 times as broad as long; anterior genae parallel in sides; inner surface of protibiae with shining fleck; body length 9.2 mm *B. reichardti*
Pronotum about 1.5 times as broad as long; anterior genae converging to clypeus; inner surface of protibiae without shining fleck 7
7. Ventral surface of body and abdominal sternites with short pubescence; body length 6.7-8.6 mm *B. potanini potanini*
Ventral surface of body with weak pubescence, abdominal sternites almost glabrous; body length 9.2 mm *B. potanini nudiventris*

Key to the world species of *Blindus* Mulsant et Rey ()

1. Front angles of pronotum obtuse; body length 9.5 mm
..... *B. fulvicornis*
Front angles of pronotum acute 2
2. Basal margin of pronotum interrupted or absent 3
Basal margin of pronotum intact 5
3. Basal margin of pronotum absent 4
Basal margin of pronotum interrupted at middle; body length 8.7-9.6 mm *B. curvotibius* sp. nov.
4. Punctures of pronotum rugose, often elongated and confluent in sides; body length 7.0-9.8 mm *B. strigosus*
Punctures of pronotum distinct, often feebly elongated and alone in sides; body length 7.3-8.9 mm *B. japonicus*
5. Punctures of pronotum distinct, partly confluent in sides 6
Punctures of pronotum big and confluent, commonly confluent in sides; body length 9.0-10.8 mm *B. tibetanus*
6. Punctato-striae of elytra thin, body length 8.9 mm ... *B. reichardti*
Punctato-striae of elytra thick 7
7. Body including abdominal sternites with short pubescence;

longitudinal groove of propleuron thin, body length 6.7-8.6 mm ...

..... *B. potanini potanini*
Abdominal sternites glabrous; longitudinal groove of propleuron coarse; body length 6.7-8.6 mm *B. potanini nudiventris*

1 *Blindus curvotibius* sp. nov. (Figs 2-9, 52)

Body oblong-oval, convex above, shining black; antennae with first and second segments reddish brown, third to seventh segments black, eighth to eleventh segments yellow-brown. Protarsomere brick-red, meso- and metatarsomere brown.

Male Anterior margin of clypeus feebly curved inwards, lateral margin curved, anterior genae roundly dilated, posterior genae inflexed; head weakly convex in posterior half, with "v"-form concave in middle, fronto-clypeal sulcus deeply inflexed and curved; frons with dense, round, small punctures. Antennae loose stick, with hairs, reaching to the base of pronotum, second to sixth segments columniform, beginning to swell from seventh to tenth segments, terminal segment oblong-oval, relative length of each segment from base to apex: 41, 20, 6, 33, 32, 29, 28, 31, 29, 28, 40.

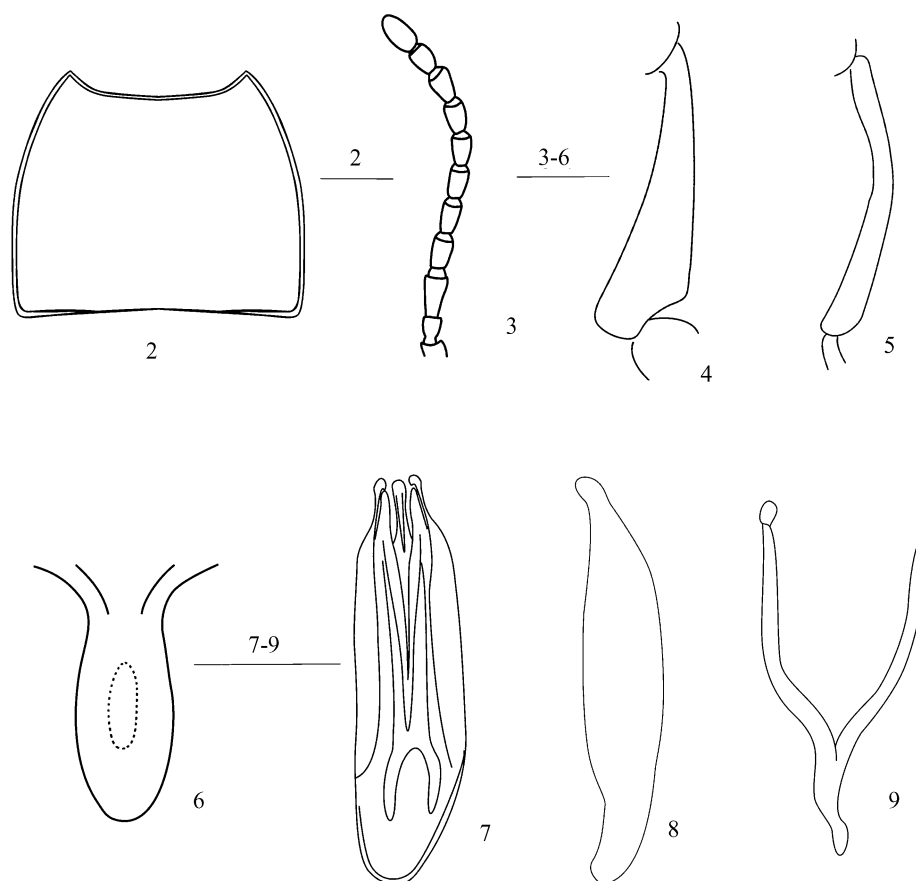
Pronotum trapeziform, about 1.6 times as broad as long; anterior margin deeply inflexed but straight in middle, with weakly edging; lateral margin steeply oblique contracted from base to apex, with whole edging; front angles acute, posterior angles subrectangular; base with edging except middle; disc feebly convex, covered with dense and round punctures, becoming elongated to sides without combinative; stripe of propleuron dense. Prosternum with irregular wrinkles, prosternal process lanciform, obtuse at apex, horizontally protrudent backwards, with wrinkles. Meso- and metasternum with wrinkles. Abdominal with first to third segments convex in middle, with wrinkles and small punctures, anal segment bottom cambered with punctures.

Scutellum triangular, without punctures. Elytra oblong-oval, strongly convex, about 1.4 times as long as broad; sides dilated from base to middle; disc flat, steeply oblique contracted from middle to base and apex, with 16 punctato-striae, punctures of punctato-striae deep and almost conjoint, intervals convex, with dense small punctures.

Protibiae distinctly dilated from base to apex, outer margin straight, inner margin weakly curved; protarsomeres 1-3 foliiform, ventral surface with brown fuzz; mesotibiae straight; metatibiae distinctly curved and thin at middle. The ratio of relative lengths of metatibiae 1-4 segments: 90, 41, 25, 49.

Aedeagus columniform, length 1.7 mm, width 0.4 mm, sides parallel in dorsal view, curved in lateral view (Figs 7-9).

Female longer and wider than male.



Figs 2-9. *Blindus curvotibius* sp. nov. 2. Pronotum. 3. Antenna. 4. Protibia. 5. Metatibia. 6. Prosternal process. 7. Aedeagus ventral view. 8. Aedeagus lateral view. 9. Spiculum gastrale. Scale bars = 1 mm.

Protarsomere not widened; metatibia straight comparatively. Other characteristics as male.

Measurements. Body length: 8.7 mm, 9.6 mm; width: 4.1 mm, 5.0 mm.

Holotype, Jigong Mountain, Henan, 5 Aug 2004, WANG Feng-Yan. Paratypes 2, same data as holotype.

Diagnosis. The new species can be distinguished from *Blindus reichardtii* Medvedev, 1968 by the following characteristics: frons cupped in the middle; punctostriate of elytra deep, intervals strongly convex; basal edging of pronotum interrupted in the middle; metatibiae obviously curved, and becoming narrow in the middle.

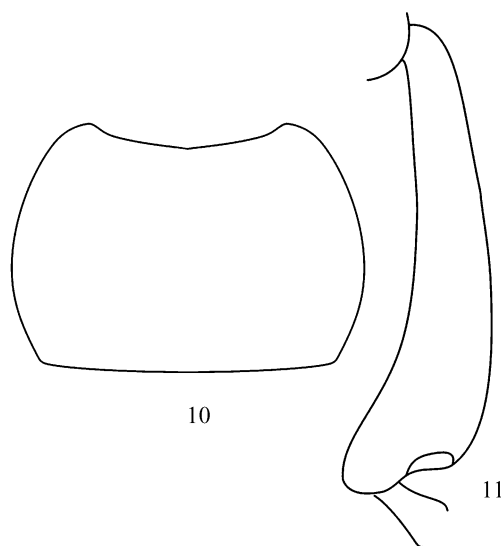
Etymology. The new species is named for its cambered metatibiae.

2. *Blindus fulvicornis* (Reitter, 1889) (Figs 10-11)

Pedinus fulvicornis Reitter, 1889: 700; Seidlitz, 1893: 375; Reitter, 1904: 61.

Blindus fulvicornis Medvedev, 1968: 159-160.

Distribution. China (Inner Mongolia, Gansu and Sichuan).



Figs 10-11. *Blindus fulvicornis* (Reitter, 1889) (from Medvedev, 1968). 10. Pronotum. 11. Protibia.

3. *Blindus japonicus* (Seidlitz, 1893) (Fig. 53)

Pedinus (Blindus) japonicus Seidlitz, 1893: 374, 376; Reitter, 1904: 62. *Blindus japonicus* Medvedev 1968: 159 (Figs 195-199).

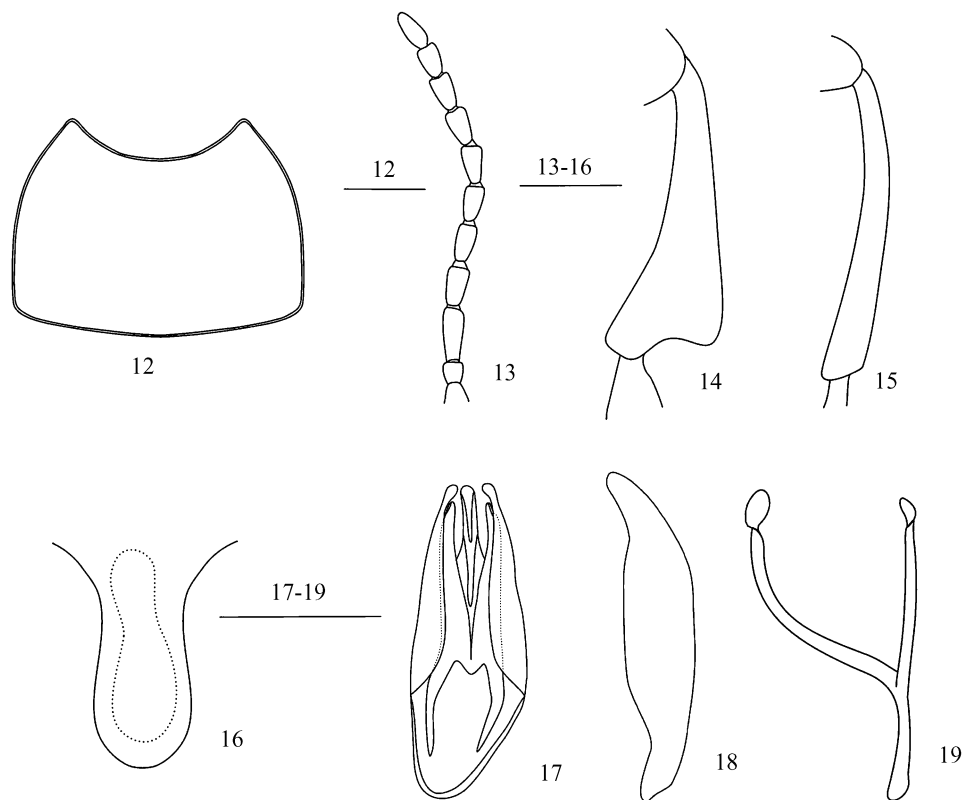
Distribution. Japan.

4 *Blindus potanini potanini* Medvedev, 1968
(Figs 12-19, 54)

Blindus potanini potanini Medvedev 1968: 160-162

Materials examined 53, 75, Beijing Mountain, Danba County, Sichuan, alt 2 200 m, 29 July 1999, REN Guo-Dong

Distribution. China (Sichuan).



Figs 12-19. *Blindus potanini potanini* Medvedev, 1968. 12. Pronotum. 13. Antenna. 14. Protibia. 15. Metatibia. 16. Prosternal process. 17. Aedeagus ventral view. 18. Aedeagus lateral view. 19. Spiculum gastrale. Scale bars = 1 mm.

5 *Blindus potanini nudiventris* Medvedev, 1968
(Figs 20-27, 55)

Blindus potanini nudiventris Medvedev, 1968: 162

Materials examined 32, 40, Beijing Mountain, Danba County, Sichuan, alt 2 200 m, 29 July 1999, REN Guo-Dong

Distribution. China (Sichuan).

6 *Blindus reichardtii* Medvedev, 1968 (Figs 28-35, 56)

Blindus potanini potanini Medvedev, 1968: 163-165.

Materials examined 5, 10, Dixiang, Danba County, Sichuan, alt 2 230 m, 18 July 2008, collected by REN Guo-Dong; 2, 3, Batang County, Sichuan, alt 3 850 m, 16 July 2008, collected by REN Guo-Dong

Distribution. China (Sichuan).

7 *Blindus strigosus* (Faldem ann, 1835) (Figs 36-43, 57)

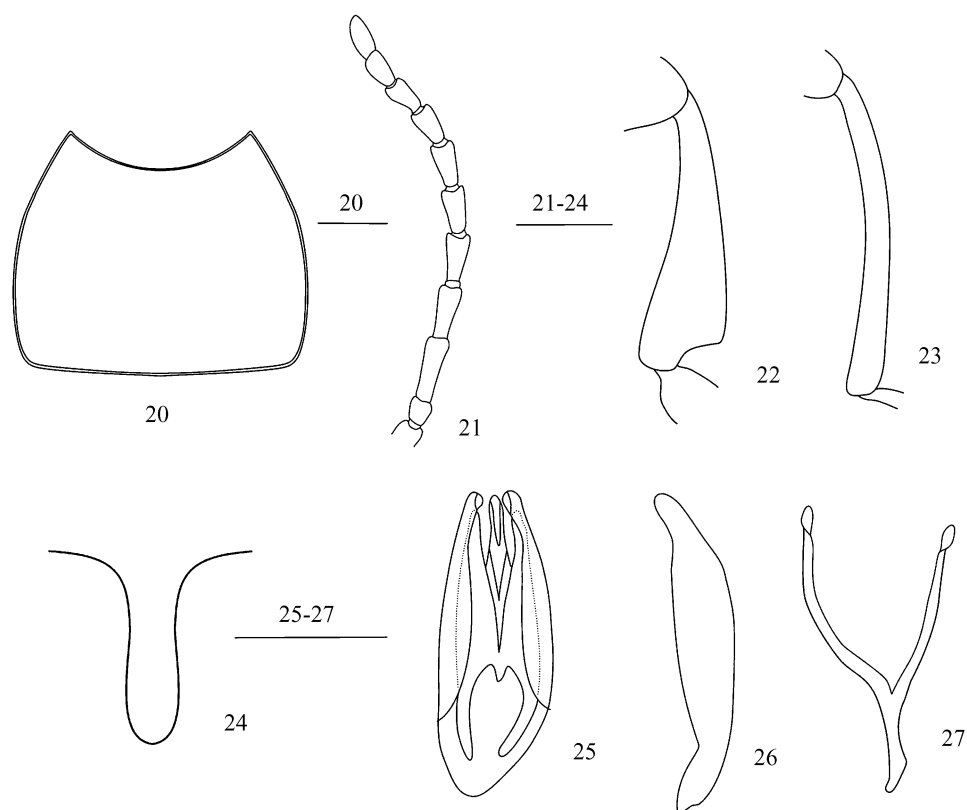
Pedinus strigosus Faldem ann, 1835: 410.

Pedinus (Blindus) strigosus Mulsant et Rey, 1853a: 122; 1853b: 206; Seidlitz, 1893: 374; Reitter, 1904: 61; Schuster, 1940: 19; Zhao, 1963: 55.

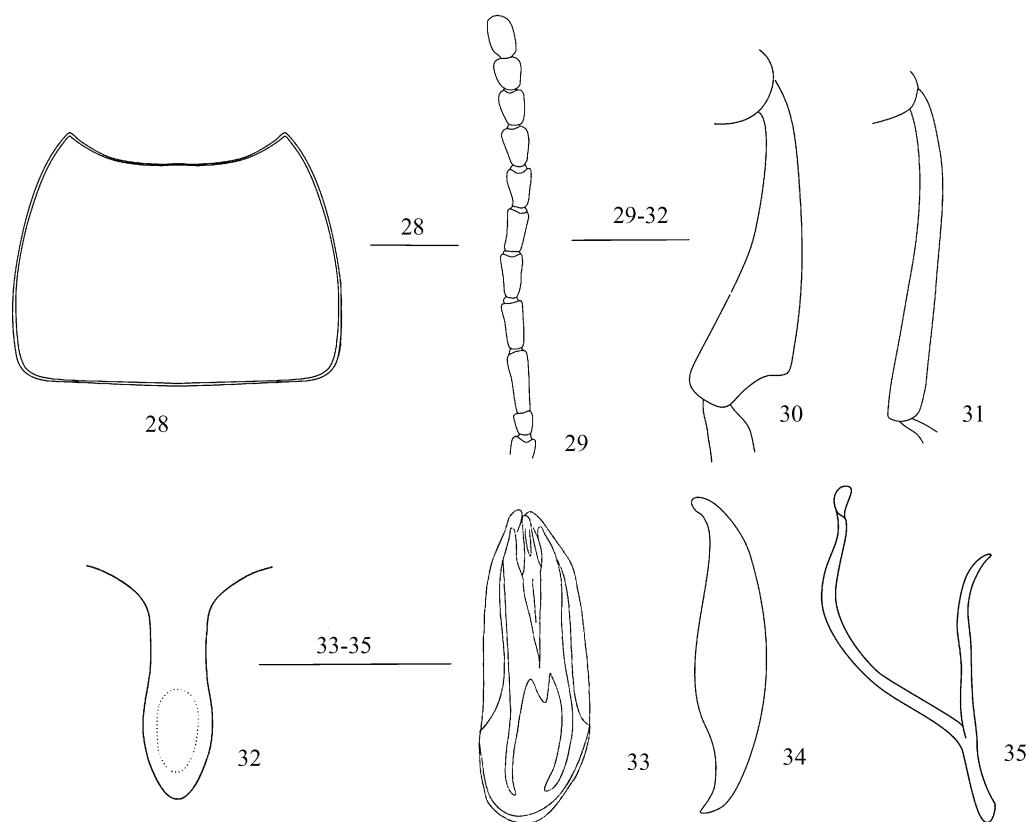
Blindus strigosus (Faldem ann, 1835): Medvedev, 1968: 157-159, figs 195-199; Ren et Yu, 1999: 183-185.

Colepota faldemanni Baudi di Selve, 1876: 46; Ferrer, 1992: 160.

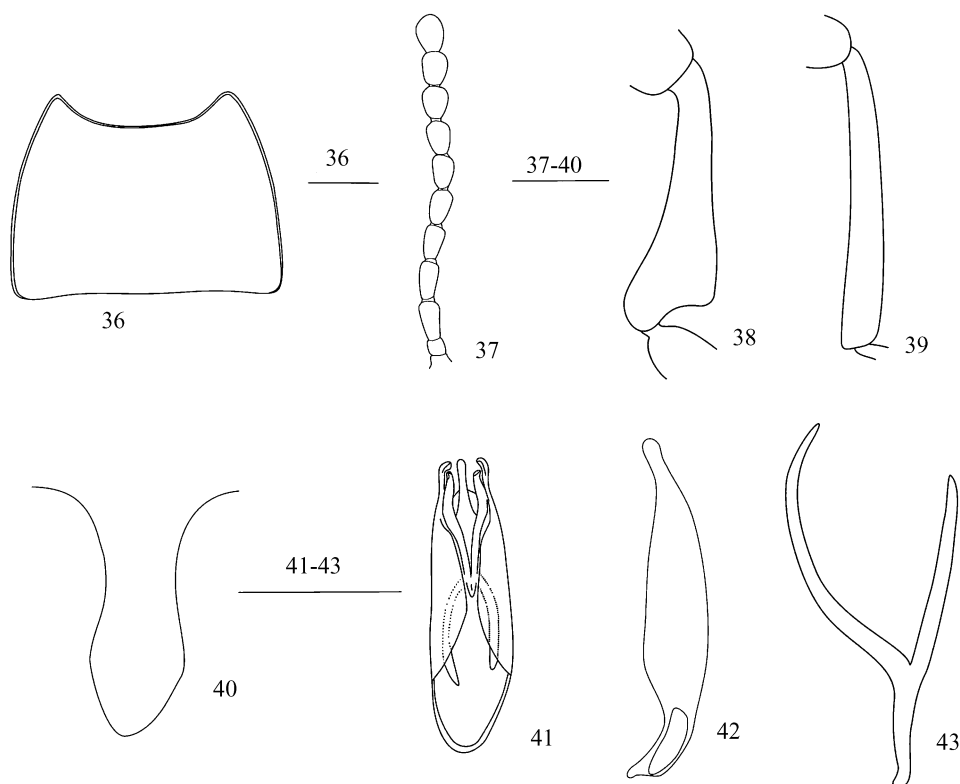
Materials examined 2, 1, Weichang County, Hebei, 29 July 1994, REN Guo-Dong; 1, 4, Shizi Mountain, Chengde City, Hebei, 23 July 1990, REN Guo-Dong; 50, 62, Jinhekou, Yuxian City, Hebei, 14 July 1999, LI Jing and WANG Feng-Yan; 23, 42, Xiaowutai, Yuxian County, Hebei, 5 July 2001, WANG Feng-Yan; 30, 35, Mouping County, Shandong, 11 July 2007, WANG Ji-Liang and WANG Feng-Yan; 1, Beijing, 8 June 1960, TAN Mei-Qian; 2, 2, Mutianyu, Beijing, 14 May 1994, REN Guo-Dong; 5, 8, Dongzhai, Xinyang City, 15 July 2005, WANG Ji-Liang and GAO Chao; 8, 6, Huixian County, 27 July 2007, WANG Feng-Yan and



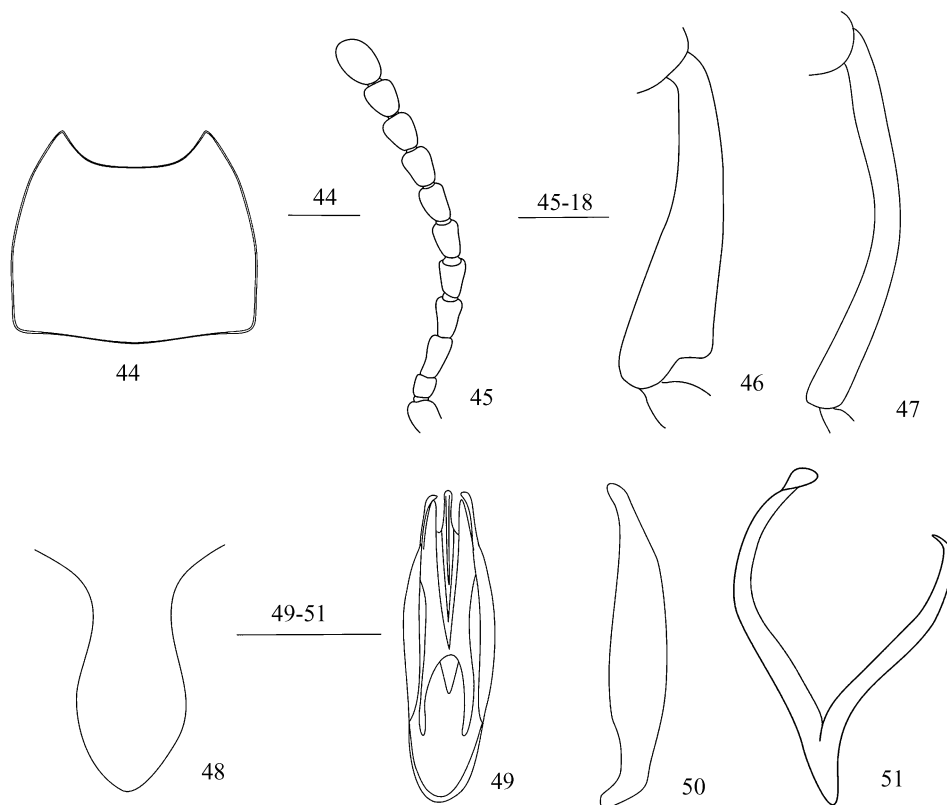
Figs 20-27. *Blindus potanini nudiventris* Medvedev, 1968. 20. Pronotum. 21. Antenna. 22. Protibia. 23. Metatibia. 24. Prosternal process. 25. Aedeagus ventral view. 26. Aedeagus lateral view. 27. Spiculum gastrale. Scale bars = 1 mm.



Figs 28-35. *Blindus reichardtii* Medvedev, 1968. 28. Pronotum. 29. Antenna. 30. Protibia. 31. Metatibia. 32. Prosternal process. 33. Aedeagus ventral view. 34. Aedeagus lateral view. 35. Spiculum gastrale. Scale bars = 1 mm.



Figs 36-43. *Blindus strigosus* (Faldem ann, 1835). 36. Pronotum. 37. Antenna. 38. Protibia. 39. Metatibia. 40. Prosternal process. 41. Aedeagus ventral view. 42. Aedeagus lateral view. 43. Spiculum gastrale. Scale bars = 1 mm.



Figs 44-51. *Blindus tibetanus* (Faim aire, 1897). 44. Pronotum. 45. Antenna. 46. Protibia. 47. metatibia. 48. Prosternal process. 49. Aedeagus ventral view. 50. Aedeagus lateral view. 51. Spiculum gastrale. Scale bars = 1 mm.

HUANG Wen-Jing

Distribution. China (Beijing, Tianjin, Henan, Hebei, Shandong, Liaoning, Inner Mongolia, Hubei, Sichuan and Taiwan), Russia (Far East) and Korean Peninsula

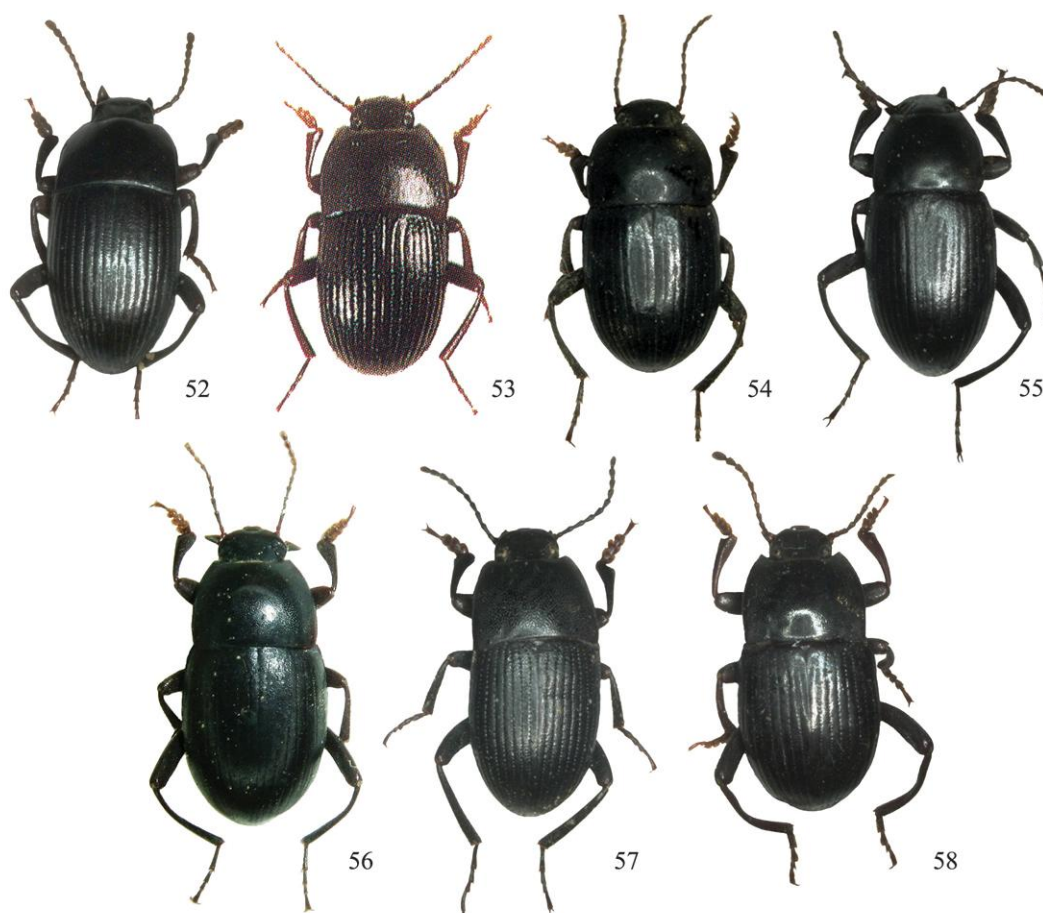
8 *Blindus tibetanus* (Faimaire, 1897) (Figs 44-51, 58)

Pedinus tibetanus Faimaire, 1897: 217.

Blindus tibetanus Medvedev 1968: 165-166

Materials examined 4, 3, Kangding County, Sichuan, 16 Apr 1993, LI Ji-Jun; 1, Wushan County, Chongqing, alt 200-1800 m, 26 July 2006, ZHANG Xiao-Rong

Distribution. China (Chongqing, Sichuan, and Xizang).



Figs 52-58 Adult male of *Blindus* spp. 52. *B. curvotibius* sp. nov. 53. *B. japonicus* (Seidlitz, 1893) (from Kurosawa, Hisamatsu et Sasaji 1985). 54. *B. potanini potanini* Medvedev, 1968 55. *B. potanini nudiventris* Medvedev, 1968 56. *B. reichardtii* Medvedev, 1968 57. *B. strigosus* (Faldemann, 1835). 58. *B. tibetanus* (Faimaire, 1897).

Acknowledgements We are indebted to Dr. Maxim Nabozhenko of the Southern Scientific Centre for his help and guidance in checking the specimens and WANG Feng-Yan for providing the specimens collected in Jigong Mountain of Henan, China

REFERENCES

- Baudi di Selve, F. 1876. Europaeae et circummediterraneae faunae Tenebrionidum specierum, quae Comes Dejean in suo Catalogo, editio 3^o consignavit, ex ejusdem collectione in R. Taurinensi Museo asservata, cum auctorum hodiernae denominatione collatio. Pars altera. Deutsche Entomologische Zeitschrift, 20: 1-74.
- Faimaire, L. 1897. Description de coleopteres nouveaux de la Malaisie, de l'Inde et de la Chine. Notes from the Leyden Museum, 19: 209-223.
- Faldemann, F. 1835. Coleopterum ab illustrissimo Bungio in China boreali, Mongolia et Altaicis collectorum, non ab illustrationes Turczoninoffio et Stehkinio e provincia Irkutsk missum illustrations. Mem Acad Petersb, 2: 408-464.
- Kurosawa, Y., Hisamatsu, S. and Sasaji, H. 1985. The Coleoptera of Japan in Color Vol. . Hoikusha Publishing CO. LTD, Tokyo. P. 295.
- Mulsant, E. and Rey, C. 1853a. Essai d'une division des derniers. Mém Acad Sci, 2 (3): 20-151.
- Mulsant, E. and Rey, C. 1853b. Essai d'une division des derniers. Mém Acad Sci, 4: 1-235.
- Ferrer, J. 1992. *Copotus faldemanni* Baudi (syn. n.) is found identical to *Pedinus strigosus* Faldemann (Col Tenebrionidae). Nouv. Revue Ent., 9: 160.
- Ivan, D. and Lobl, I. 2008. Tenebrionidae: Pedinini. In: Lobl, I. et Smetana, A. Catalogue of Palearctic Coleoptera Vol. 5.

- Tenebrionoidea. Apollo Books, 5: 277-291.
- Medvedev, G. S. 1968. Zhukichernotelki (Tenebrionidae) podsemeystvo Opatrinae Triby Platynotini, Dendarini, Pedinini, Dissonomini, Pachypterini, Opatrini (chast) i Heterotarsini Fauna SSSR Zhestkokrylye, 19 (2): 155-167.
- Medvedev, G. S. 1992. Key to the identification of insects of the Soviet Far East. Coleoptera. Nauka Leningrad, 621-659, 297-314.
- Ren, G-D and Yu, Y-Z 1999. The darkling beetles from deserts and semideserts of China (Coleoptera: Tenebrionidae). Hebei University Publishing House. P. 183-185.
- Reitter, E. 1889. Insecta a C. I. G. N. Potanin in China et in Mongolia novissime lecta. XII. Tenebrionidae. Horae Soc. Ent. Ross., 23: 678-710.
- Reitter, E. 1904. Bestimmungs-Tabelle der Tenebrioniden-Unterfamilien: Lachnogyini, Akidini, Pedinini, Opatrini und Trachyscelini aus Europa und angrenzenden Ländern. Verh. Naturf. Ver. Brunn, 42: 25-189.
- Schuster, A. 1940. Die Tenebrionidae des Museums Hoang Hopeiho in Tientsin. Kokopt. Rdsh. Vienna, 26: 15-24.
- Seidlitz, G. 1893. Tenebrionidae. In: Kiesenwetter, H. and Seidlitz, G. (eds.), Naturgeschichte der Insecten Deutschlands. Begonnen von Dr. W. F. Erichson, fortgesetzt von Prof. Dr. H. Schaum, Dr. G. Kraatz, H. v. Kiesenwetter, Julius Weise, Edm. Reitter und Dr. G. Seidlitz. Erste Abteilung Coleoptera. Fünfter Band. Erste Hälfte, Berlin. Nikolaische Verlags-Buchhandlung, 28: 201-400.
- Zhao, Y-C 1963. Economic Insect Fauna of China, Fasc. 4. Coleoptera, Tenebrionidae. Sciences Press Beijing. P. 1-63.

中国直扁足甲属分类及一新种记述 (鞘翅目, 拟步甲科)

任国栋 张承礼

河北大学生命科学学院 保定 071002

摘要 对中国直扁足甲属 *Blindus* Mulsant et Rey, 1853 进行了分类总结, 分别给出世界已知 8 种及亚种的 和 成虫检索表, 描述 1 新种: 弯胫直扁足甲 *B. curvotibius* sp. nov.。模式标本保存在河北大学博物馆。

弯胫直扁足甲, 新种 *Blindus curvotibius* sp. nov. (图 2~9, 52)

新种近似于 *Blindus reikhardti* Medvedev, 1968, 两者的显著区别是: 1) 前者的额有 1 人字凹; 而后者无; 2) 前者前

胸背板的刻点行深, 行间十分隆起; 而後者的刻点行浅, 行间隆起不明显; 3) 前者的前胸背板基部仅两端有饰边; 而後者整个基部有完整饰边; 4) 前者的后足胫节明显弯曲; 而後者后足胫节均匀弯曲, 整体弯曲不强烈。

正模 , 河南鸡公山, 2004-08-05, 海拔 250~700 m, 王凤艳采。副模 2 , 记录数据同正模。

词源: 种名根据后足胫节弯曲而提订。

关键词 鞘翅目, 拟步甲科, 扁足甲族, 直扁足甲属, 分类, 新种, 中国。

中图分类号 Q 969.498.2